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ZRG1 F01 Brain Disorders and Clinical Neuroscience

Parent IRG: BDCN - Brain Disorders and Clinical Neuroscience

The specific areas of interest listed below may be studied from the perspective of neuroanatomical or neurophysiological alterations, changes in neurotransmitter or neurotrophin function or metabolism, the genetic, cellular, or molecular basis of alterations induced by disease or injury, the influence or involvement of the immune or vascular systems in a neural disease process or response, and the neurological basis of addictive, cognitive, behavioral, and emotional disorders.

- Neural disorders and/or injury of the nervous system
- Animal models of neural injury or disease
- Studies of neural disorders or injury based on specific patient populations
- The development of rehabilitative and therapeutic strategies
- Investigation of traumatic brain or spinal cord injury
- Studies of the consequences of episodes of ischemia or hypoxia
- Study of mental disorders, neurodegenerative diseases, and other neuropathies

ZRG1 F02A Integrative, Functional and Cognitive Neuroscience A

Parent IRG: IFCN - Integrative, Functional and Cognitive Neuroscience

Specific areas of interest for this study section focus on the limbic system.

Key words are:

- Neural basis of behavior such as motivation, emotion, learning and memory
- Neuroendocrinology
- Neuroimmunology
- Circadian rhythms
- Neurotoxicology

ZRG1 F02B Integrative, Functional and Cognitive Neuroscience B

Parent IRG: IFCN - Integrative, Functional and Cognitive Neuroscience

Specific areas of interest for this study section focus on sensory systems.

Key words are:

- Chemosensation
- Pain
- Somatosensory function
- Motor function
- Sensorimotor function
- Vestibular function, hearing, vision, multi-sensory systems, and higher cortical function

ZRG1 F03A Molecular, Cellular and Developmental Neuroscience A

Parent IRG: MDCN - Molecular, Cellular and Developmental Neuroscience

Areas of interest for this study section include basic neuronal cell biology with an emphasis on fundamental mechanisms of neuronal cell function, including those relevant to disease processes. These areas also include applications concerned with the initial formation of, as well as cell specialization and differentiation in, the developing nervous system. Migratory events and the development, aging, and regeneration of neuronal connectivity are covered.

Key words, as they relate to neuronal systems, are:

- Synaptic plasticity
- Trafficking
- Protein assembly
- Cytoskeleton
- Membrane recycling
- Progenitor and stem cells
- Development
- Regeneration/apoptosis
- Differentiation
- Axon outgrowth
- Glial biology
- Transcriptional regulation
- Cell cycle
- Myelination
- Regeneration

ZRG1 F03B Molecular, Cellular and Developmental Neuroscience B

Parent IRG: MDCN - Molecular, Cellular and Developmental Neuroscience

The area encompassed by this study section includes neuronal and muscle signal transduction, with a focus on both the structure and function of the transducers themselves, as well as cellular regulation/physiology and neurochemical and pharmacological mechanisms. Key words, as they relate to neuronal systems, are:

- Signal transduction
- Model systems
- Protein structure/function
- Second messengers
- Electrophysiology
- Ion transport
- Transporters
- Imaging
- Calcium
- Gap junctions
- Connexins
- Ion channels
- Neuromodulators
- Ligand-activated pathways
- Neurotransmitter synthesis
- Neuropharmacology

ZRG1 F04 Biochemistry, Biophysics, and Chemistry

Parent IRG: BPC - Biophysical and Chemical Sciences

Key words for this study section are:

- Chemical synthesis, medicinal compounds, drug design, carbohydrate polymers, natural products, organometallo chemistry, and modification of biomolecules, including biocatalysis and *metallo*enzymes
- Enzymology, including enzyme kinetics, biocatalysis, metabolic pathways, and metallo enzymes
- Protein structure and function
- Nucleic acid structure
- Thermodynamics
- NMR, EPR, X-ray crystallography, electron microscopy, and spectroscopy of biomolecules, including proteins, nucleic acids, and membrane proteins
- Cell membrane components and lipid metabolism
- Glycoproteins, including synthesis and processing
- Carbohydrate biochemistry

ZRG1 F05 Cell and Developmental Biology

Parent IRG: CDF - Cell Development and Function

The focus of this study section is on molecular, cellular, and developmental biology of cells and tissues. This includes most aspects of the genesis, structure, and function of:

- Cells and cell organelles
- Cell compartmentalization and vesicular transport
- Cell motility
- Gene expression, including structure and function of chromatin, transcription, RNA processing and stability, and translation
- Regulation of the cell cycle, cell death, and cell senescence
- Cell-cell and cell-substrate interactions
- *Intracellular* and *intercellular* signal transduction
- The structure and function of membrane transport processes
- Cellular and developmental biology, including molecular/cellular embryogenesis, induction, pattern formation, and differentiation of cells and tissues

Key words for this study section are:

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|---|--|
| ▪ Cell division and cell cycle | ▪ Transcription, RNA processing, and translation |
| ▪ Signal transduction | ▪ Cellular and molecular hematology, hematopoiesis, and leukemogenesis |
| ▪ Stem cells | ▪ Extracellular matrix |
| ▪ Cell motility | ▪ Cellular and molecular developmental biology |
| ▪ Transport physiology, including membrane flux and intracellular transport | |

ZRG1 F06 Endocrinology, Reproductive Science, and Nutritional Metabolism
**Parent IRG: ENR/NMS - Endocrinology and Reproductive Sciences/
Nutritional and Metabolic Sciences**

This study section focuses on endocrinology and reproductive biology, including developmental animal and human endocrinology, general clinical endocrinology, nutrition, and metabolism.

Topics under endocrinology include:

- Hormones and endocrine glands associated with the reproductive processes
- Physiological, pathophysiological, and molecular processes involving hypothalamic, pituitary, pineal, thyroid, adrenal, and pancreatic hormones
- Basic and clinical reproductive endocrinology.

Topics in embryology and reproductive biology include:

- Mammalian embryology and development, from the early stages of gonad development through implantation of the embryo, as well as aspects of mid- to late-pregnancy, parturition, neonatal development, and maternal/fetal physiology

Topics in nutrition and metabolism include:

- Nutrient and energy metabolism
- Metabolic and molecular functions in Type II diabetes and obesity

Key words for this study section are:

- Endocrinology
- Embryologic development
- Reproductive biology
- Nutrition, diet and obesity
- Type II diabetes

ZRG1 F07 Immunology
Parent IRG: IMM - Immunological Sciences

Key words for this study section are:

- Cellular immunology
- Antigens and antibodies (namely, structure and function)
- Immune deficiencies (non-AIDS)
- Autoimmune diseases
- Tissue and organ transplantation
- Vaccine development for infectious diseases (non-AIDS)
- Mucosal Immunity
- Allergy

ZRG1 F08 Prokaryotic and Eukaryotic Molecular Biology and Genetics

Parent IRG: GNS - Genetic Sciences

Key words for this study section are:

- Virology
- Microbiology
- Parasitology
- Basic molecular genetics (prokaryotic and eukaryotic)
- Basic DNA replication, recombination, and repair
- Developmental genetics

ZRG1 F09 Oncological Sciences

Parent IRG: ONC - Oncological Sciences

Key words for this study section are:

- Cancer therapeutic agents
- Cancer prevention
- Cancer diagnosis
- Gene expression and regulation related to cancer
- Cancer genetics
- Cancer-related DNA repair
- Gene therapy for cancer and other diseases
- Viral vectors, cell delivery systems, and animal models
- Cancer immunology, including cancer vaccines

ZRG1 F10 Basic and Clinical Aspects of Respiratory, Cardiovascular, Digestive and Renal Systems

Parent IRG: PPS - Pathophysiological Sciences

This study section covers topics that deal mainly with the physiology and pathology of the respiratory, cardiovascular, digestive and renal systems at the tissue and organ levels.

Key words for this study section are:

- Physiology of the respiratory, cardiovascular, digestive and renal systems
- Pathology of the above-named systems
- Toxicology
- Exercise physiology
- Neural control of circulation
- Angiogenesis and hemostasis (platelets and blood coagulation)